is to say, the vessels form on their journey two successive networks separated by intermediary trunks. This arrangement, a little less accentuated on the floor than on the roof, added to the presence of a fine vibratile epithelium on the course of the pulmonary vessels, proves the active part of this apparatus as an organ of hæmatosis.—*Comptes Rendus*, June 23, 1879, p. 1325.

On the Zoantharia Malacodermata *of the Shores of Marseilles.*
By M. E. Jourdan.

The anatomical plan of the Actiniadæ is well known ; it may be compared to a cylindrical body, furnished at one end with a buccal aperture surrounded by a circlet of tentacles, and hollowed by a mesenteric cavity (gastric cavity of the larva), which is connected with the mouth by an œsophageal region of ectodermal origin, formed by a short and wide tube. Between the œsophageal tube and the walls of the body are the septa, which terminate freely by the lower part of their inner margin in the mesenteric cavity.

We have successively studied these different regions in the types which presented peculiarities appreciable by the naked eye, and we will here give a summary of the principal results that we have obtained.

The walls of the body contain three layers—an external cellular layer or ectoderm, a fibrous mesodermic layer, and an internal cellular layer or endoderm.

The ectoderm is formed of glandular elements, vibratile cells, epithelial elements, which are probably sensitive (analogous to those of the chromatophorous sacs of *Actinia equina*), and, lastly, neuro-muscular elements, which we have distinctly observed in the above species. In *Phellia* this cellular layer secretes a viscous mucus, which, by agglutinating fragments of all sorts, gives a peculiar aspect to the body.

In *Bunodes* the glandular elements of the ectodermic layer group themselves together and form the little organs which adorn the column of these animals.

Cerianthus is remarkable for the structure of its mesodermic layer, and thus constitutes a distinct type among the Zoantharia Malacodermata. This layer is composed of a thick muscular region included between two planes of connective tissue. The longitudinal muscular fibres composing it are smooth and arranged in radiating laminæ. Beneath the inner fibrous plane there exists another layer of circular fibres.

In the *Actiniæ* the mesoderm is represented by laminæ of connective tissue, clothed internally by a layer of circular muscular fibres, which occur throughout the height of the column. *Calliactis* possesses a fibrous layer of exceptional thickness and density, traversed by persistent pores, and sprinkled in its upper part with

numerous islets of annular muscular fibres which must act after the fashion of a sphincter.

The endoderm is composed of a cellular layer, which covers the inner surface of the mesoderm and extends over the septa.

The structure of the tentacles is similar to that of the walls of the body. These organs, however, are characterized by the presence of a layer of longitudinal muscular fibres situated beneath the ectoderm.

The septa originate from the mesodermic layer of the column. Their axis is a fibrous tissue covered with a layer of longitudinal muscular fibres. Upon one of its surfaces each septum bears a series of longitudinal folds, the totality of which represents a sort of fibro-muscular bundle.

The œsophagus, resulting from the turning back of the two primitive lamellæ, necessarily presents the structure of the wall of the body. The exterior cellular layer contains peculiar glandular elements.

In *Cerianthus* and the *Actiniæ* the reproductive elements originate in a sort of doubling of the fibrous layer of the septa—that is to say, in the mesodermic region.—*Comptes Rendus*, August 25, 1879, p. 452.

Notes on the Marriage-flights of Lasius flavus *and* Myrmica lobicornis. By the Rev. H. C. McCook.

The author remarked that the first-named ant is one of the most familiar objects in nature. Its small dusky-yellow workers may be seen in every American lawn, walk, field, and yard, throwing up their fragile moundlets of sand pellets, and swarming upon particles of fruit, crumbs, bones, dead insects, and all manner of sweets. It is quite cosmopolitan in its distribution, and is well known in Europe. The following observation of the annual marriage-flight of the sexes was made September 5, 1878, in the vicinity of Philadelphia. The nests observed were located directly in and on the grassy border of a trodden path in a farmyard. At 4 P.M. the males and females were seen coming out and re-entering the gate, amid great excitement on the part of the workers. The females particularly were followed by workers who "teased" them occasionally by gently nipping them with their mandibles. The flight of the young queens was, with few exceptions, made from the top of stalks of grass, where they clung for several minutes, poising themselves, spreading their wings, and swaying up and down. Even to these elevations the workers followed them, hastening their flight by occasional "nips." When the queen rose in flight, there was no evidence of feebleness or inexperince, except, in some cases, a slight tendency to a zigzag course for the first few yards. The flight was then, and in most cases from the very first also, strong and in a straight